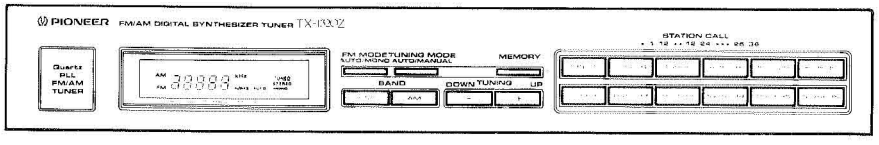
# Operating Instructions

## FM/AM DIGITAL SYNTHESIZER TUNER

# TX-1320Z



## STEREO AMPLIFIER

# SA-1520

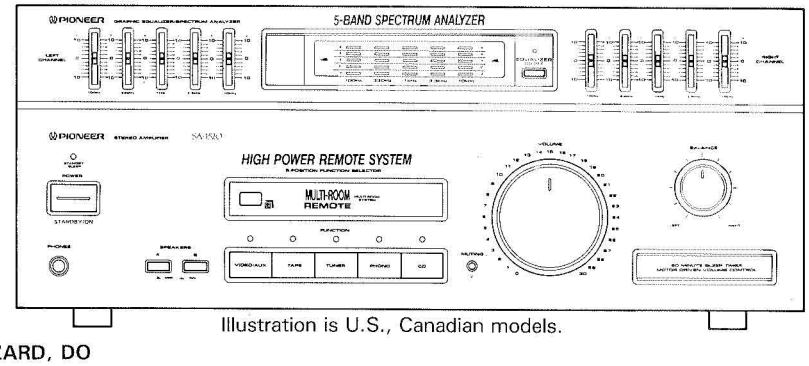



Illustration is U.S., Canadian models.

Thank you for buying this PIONEER product.
Please read through these operating instructions so you will know how to operate your model properly. After you have finished reading the instructions, put them away in a safe place for future reference.
In some countries or regions, the shape of the power plug and power outlet may sometimes differ from that shown in the explanatory drawings. However, the method of connecting and operating the unit is the same.

**WARNING:** TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

### IMPORTANT NOTICE
### [For U.S. and Canadian models]

The serial number for this equipment is located on the rear panel. Please write this serial number on your enclosed warranty card and keep it in a secure area. This is for your security.

### [For Canadian model]

**CAUTION:** TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD. RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

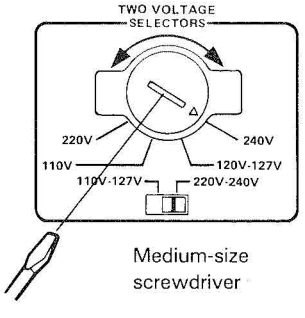
**ATTENTION:** POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

### LINE VOLTAGE SELECTOR SWITCHES

**Only multi-voltage models are provided with these switches. U.S. and Canadian models are not provided with these switches.**
**Mains voltages in Saudi Arabia are 127 V and 220 V only. Never use this model with 110 V setting in Saudi Arabia.**
The line voltage selector switches are on the rear panel. Before your model is shipped from the factory, these switches are set to the power requirements of the destination. Check that them are set properly before plugging the power cord into the AC wall socket. If the voltage is not properly set or if you move to an area where the voltage requirements differ, adjust the selector switches as follows.

1. Use a medium-size screwdriver.
2. Insert the screwdriver into the groove on the voltage selector, and adjust so that the tip of the arrow points to the voltage value of your area.

Set the voltage selector for the voltage in your area.




Medium-size screwdriver

PIONEER®
The future of sound and vision.

# IMPORTANT

The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user of the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

**CAUTION:**
**TO PREVENT THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.**

The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

# SAFETY INSTRUCTIONS

**READ INSTRUCTIONS** – All the safety and operating instructions should be read before the appliance is operated.

**RETAIN INSTRUCTIONS** – The operating instrucions should be retained for future reference.

**HEED WARNING** – All warnings on the appliance and in the operating instructions should be adhered to.

**FOLLOW INSTRUCTIONS** – All operating and use instructions should be followed.

**WATER AND MOISTURE** – The appliance should not be used near water – for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.

**LOCATION** – The appliance should be installed in a stable location.

**WALL OR CEILING MOUNTING** – The appliance should not be mounted to a wall or ceiling.

**VENTILATION** – The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.

**HEAT** – The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.

**POWER SOURCES** – The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

**POWER-CORD PROTECTION** – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

**POLARIZATION** – If your purchased product is provided with a polarized power plug, please read the following instructions. This product is equipped with a polarized alternating current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

**CLEANING** – The appliance should be cleaned only with a polishing cloth or a soft dry cloth. Never clean with furniture wax, benzine, insecticides or other volatile liquids since they may corrode the cabinet.

**POWER LINES** – An outdoor antenna should be located away from power lines.

**NONUSE PERIODS** – The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.

**OBJECT AND LIQUID ENTRY** – Care should be taken so that objects do not fall and inquids are not spilled into the enclosure through openings.

**DAMAGE REQUIRING SERVICE** – The appliance should be serviced by a Pioneer authorized service center or qualified service personnel when:

- The power-supply cord or the plug has been damaged; or
- Objects have fallen, or liquid has been spilled into the appliance; or
- The appliance has been exposed to rain; or
- The appliance does not appear to operate normally or exhibits a marked change in performance; or
- The appliance has been dropped; on the enclosure damaged.

**SERVICING** – The user should not attempt to service the appliance beyond that described in the operating instructions. For all other servicing, contact the nearest Pioneer authorized service center.

**OUTDOOR ANTENNA GRAUNDING** – If an outside antenna is connected to the antenna terminal, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges.
In the U.S.A. section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Fig. A.

**CART** – An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

NEC – NATIONAL ELECTRIC CODE

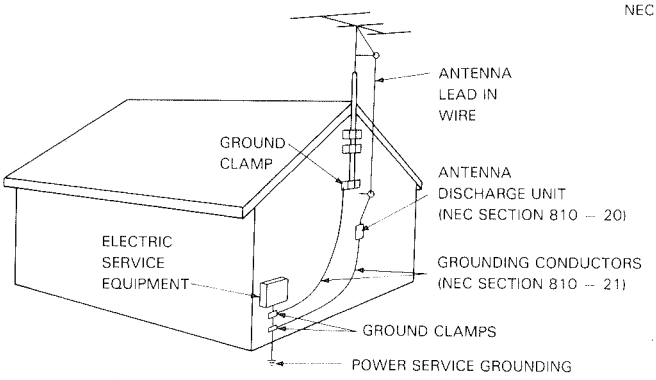



FIG.A

## [For Canadian model]

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

## [Pour le modèle Canadien]

L'interférence, radioélectrique générée par cet appareil numérique de type B ne dépasse pas les limites énoncées dans le Règlement sur les perturbations radioélectriques, section appareil numérique, du Ministère des Communications.

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# FEATURES

**High power output 130 W + 130 W**

**The remote control unit can also be used to operate other Pioneer components bearing the SR mark.**

**Includes a 5-band graphic equalizer and an LED spectrum analyzer.**

**Built-in sleep timer.**

### 36-station random FM/AM presetting

A total of up to 36 FM and AM stations can be preset in order to facilitate instant recall of your favorite stations in areas where the frequency bands are crowded with stations.

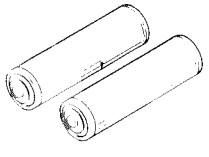
# BEFORE USING THIS COMPONENT

### Check for presence of all accessories

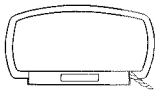
Remote control unit ..... 1

- For details, refer to the remote control unit's manual.

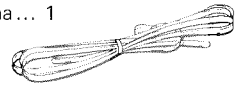
Dry-cell batteries..... 2



AM loop antenna ..... 1



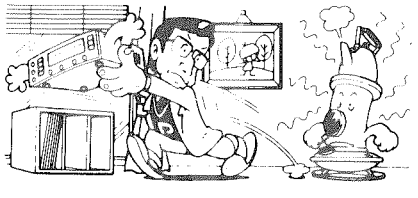
FM T-type antenna... 1



### LOCATION

**Install the tuner and amplifier in a well ventilated location where it will not be exposed to high temperature or humidity.**

Do not install the tuner and amplifier in a location which is exposed to direct rays of the sun, or near to hot appliances or radiators. Excessive heat can adversely affect the cabinet and internal components. Installation of the tuner and amplifier in a damp or dusty environment may result in malfunction accident. (Also avoid installation near cookers etc., where the tuner and amplifier may be exposed to smoke from oil, steam or heat.)



### INFORMATION TO USER [FOR MODEL SA-1520]

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- reorient the receiving antenna
- relocate this equipment with respect to the receiver
- move this equipment away from the receiver
- plug this equipment into a different outlet so that equipment and receiver are on different branch circuits.

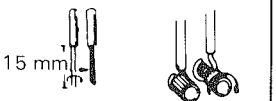
If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:
"How to Identify and Resolve Radio-TV Interference Problems".
This booklet is available from the US Government Printing Office, Washington, D.C., 20402, Stock No. 004-000-00345-4.

*The above instructions apply only to units which will be operated in the United States.*

# CONNECTIONS

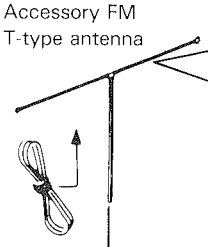
When connecting Pioneer system components, please refer to the operating instructions for the audio rack.

**CONNECTING THE FM T-TYPE ANTENNA AND AM LOOP ANTENNA**



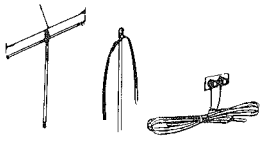

1. Strip the ends of the wires.
2. Wrap the end of the wire in a clockwise direction around the base of the terminals and tighten the terminals to secure.

Accessory FM T-type antenna



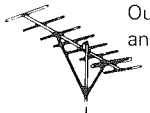
- Use for FM reception until a special-purpose FM antenna is installed.
- Stretch both ends taut and affix to a wall, etc.

Stretch taut and affix.

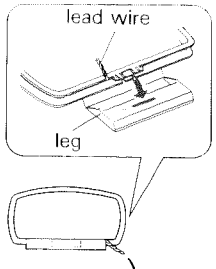


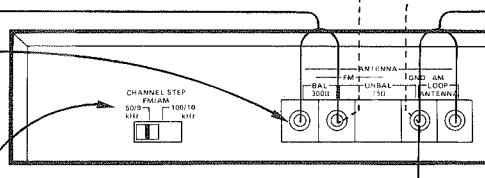
Correct Wrong

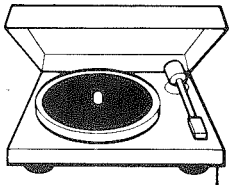
Outdoor FM antenna



AM loop antenna



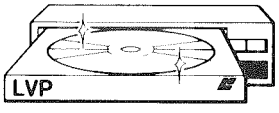


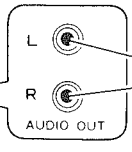
Turntable

**AM/FM CHANNEL STEP switch (See page 10.)**

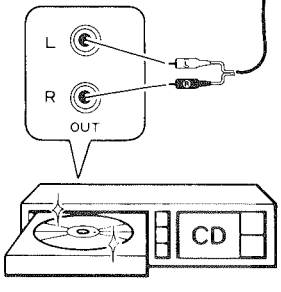
Antenna ground

To Digital Surround Processor VSP-333 (See page 15).




- Audio channel from video disc player or video cassette recorder.

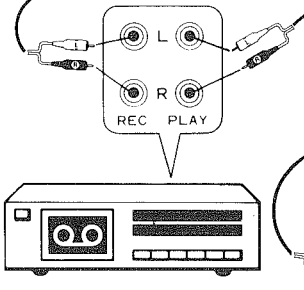



Compact disc player

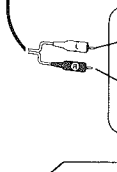
U.S. and Canadian models do not have this terminal.

This terminal is for use with tuners other than the TX-1320Z dedicated tuner.

*NOTE:*
*If the TX-1320Z is used together with another tuner, the sound will be mixed.*




Cassette deck

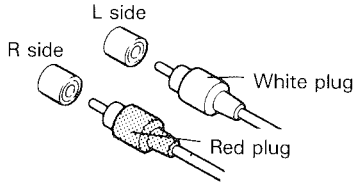



Adaptor component (Dynamic expander)

Always remember to keep the connecting bars in place when these cords are not connected.

## CONNECTING INPUT/OUTPUT CORDS

Connect the white plug to the L (left) side, and the red plug to the R (right) side. Be sure to push the plugs in securely.




### REMOTE CONTROL OUT terminal

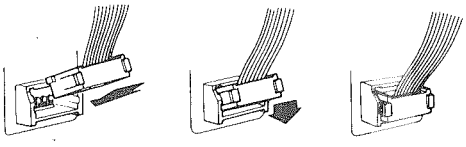
Connect this terminal to other Pioneer components when using remote control of this unit to control the other components. (See page 6.)

**Antenna ground**

Although grounding is not always necessary for reception, it is recommended for protection against damage from lightning if an outdoor FM antenna is used. Grounding is recommended as well to help reduce noise and hum.

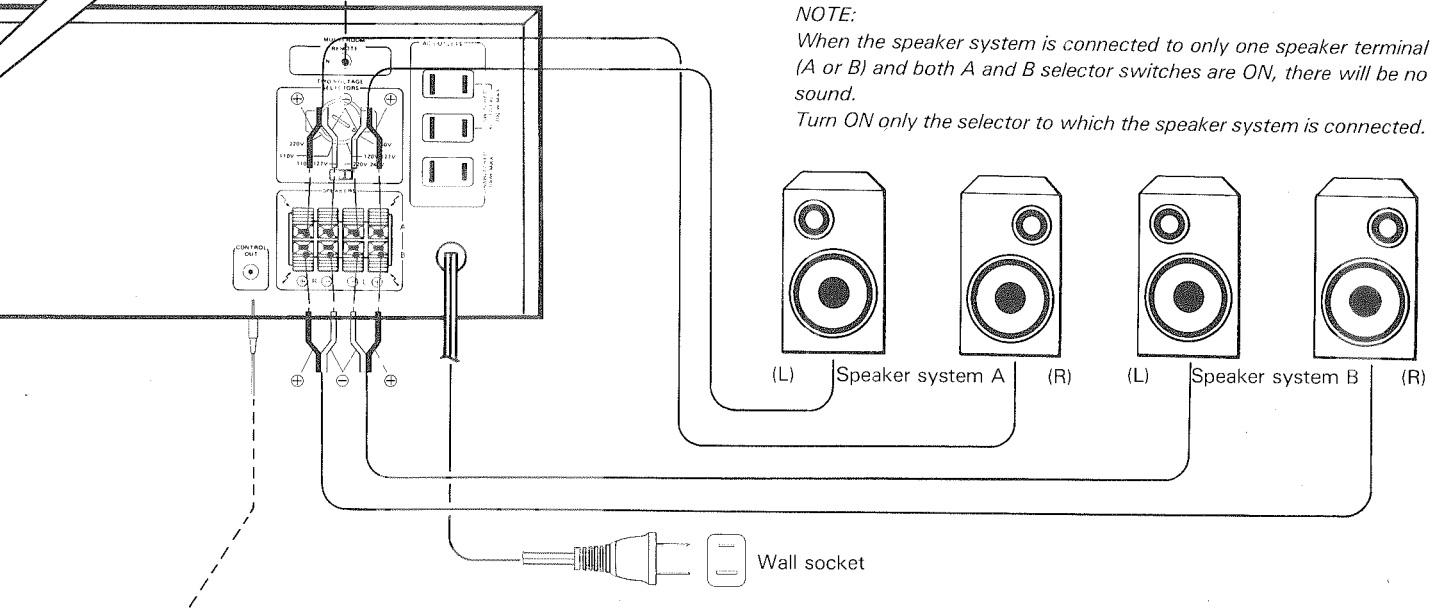
*NOTE:*

*Never make the ground connection to a gas pipe as sparks could cause the gas to ignite.*



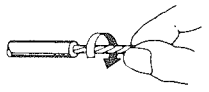
Insert the TX-1320Z furnished connector obliquely from above, and push it down until it locks, thus ensuring that it is connected. When disconnecting the connector, pull it in the opposite direction while pressing the left and right claws.

Multi-Room remote input jack (See page 6).

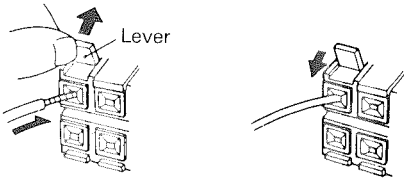



## CONNECTING SPEAKER WIRES

1. Strip off the vinyl covering and twist the strands together.



2. Raise the lever in the direction of the arrow and insert the exposed conductor into the hole.
3. Now return the lever to its original position to secure the cord.




*NOTE:*

*Do not allow any of the cord's conductors to protrude from the terminals or touch any other conductors. Malfunctioning or breakdowns may occur when conductors come into contact with each other.*

### About Speaker Impedance

When speaker systems are connected to only one of the SPEAKERS A, B terminals, such speakers should have rated impedance in the range of 8 — 16 Ω.

*NOTE:*

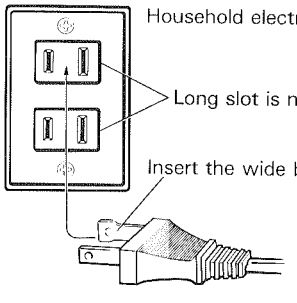
*When the speaker system is connected to only one speaker terminal (A or B) and both A and B selector switches are ON, there will be no sound.*

*Turn ON only the selector to which the speaker system is connected.*

## CONNECTING THE POWER CORD

### (For U.S. and Canadian models)

Household electrical outlets are provided with specific polarity, a live side and a neutral (ground) side. This unit utilizes such polarity in order to improve sound quality. As shown in the illustration, be sure to insert the power plug so that its blades match the width of slots in the outlet.

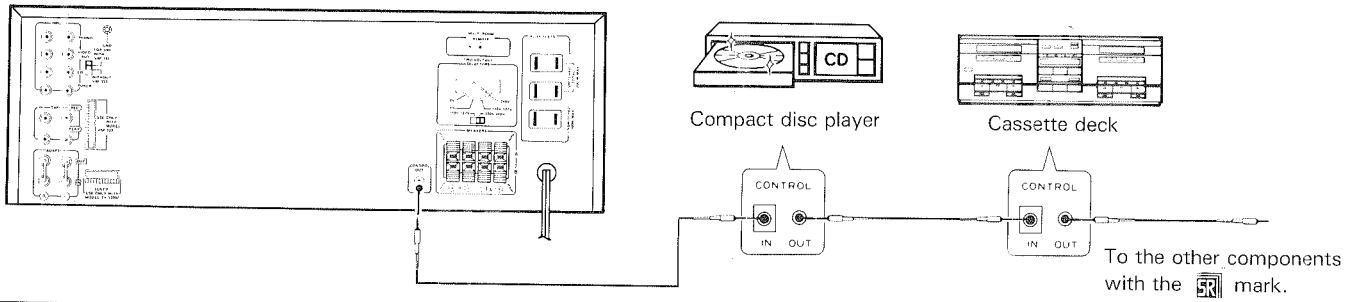


## CONNECTING THE CONTROL OUT TERMINAL

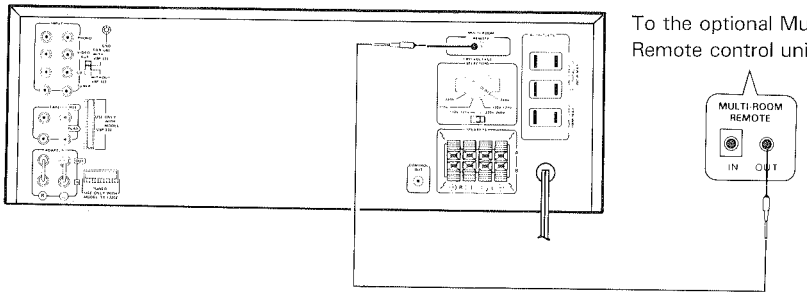
Connect this terminal when using Pioneer components with the SR mark.
It this way, the signals received from the remote control unit will be transmitted to the other components with the SR mark.
Connect to the CONTROL IN terminal of the other components you use.

- Use the accessory control cords supplied with the SR marked components.
- Be sure to insert the plugs securely.

*NOTE:*
*You cannot control the unit using the remote control unit by simply making these connections. Be sure to connect the output cords as well.*



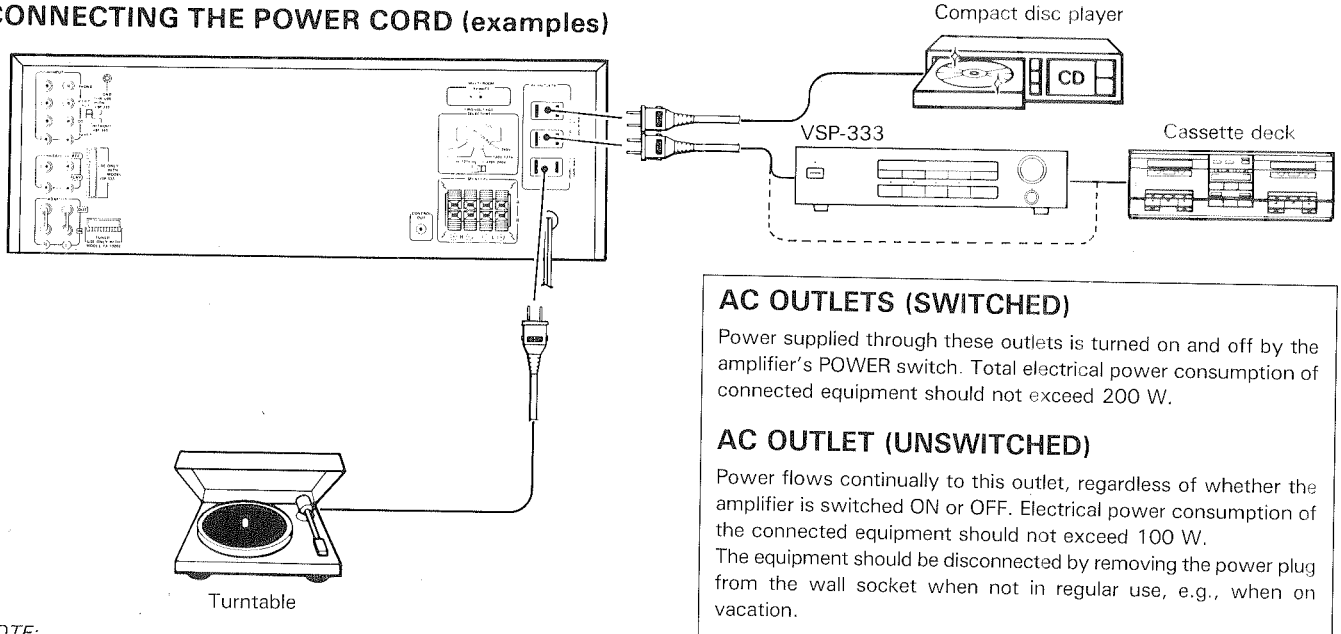

## CONNECTING THE MULTI-ROOM CONTROL OUT TERMINAL




- For details, see operating guide for Multi-Room Remote control unit.

*NOTE:*
*Be careful not to make the wrong connections for CONTROL OUT (black) and MULTI-ROOM REMOTE IN (green).*

## CONNECTING THE POWER CORD (examples)




*NOTE:*
*AC outlets and power plugs are either non-polar or polar.*
*You cannot insert a polar power plug into a non-polar AC outlet.*
*Connect only equipment which is provided with a non-polar plug to a non-polar AC outlet.*

### AC OUTLETS (SWITCHED)

Power supplied through these outlets is turned on and off by the amplifier's POWER switch. Total electrical power consumption of connected equipment should not exceed 200 W.

### AC OUTLET (UNSWITCHED)

Power flows continually to this outlet, regardless of whether the amplifier is switched ON or OFF. Electrical power consumption of the connected equipment should not exceed 100 W.
The equipment should be disconnected by removing the power plug from the wall socket when not in regular use, e.g., when on vacation.

*NOTE:*
*Do not connect appliances with high power consumption such as heaters, irons, or television sets to the AC OUTLETS in order to avoid overheating or fire risk.*

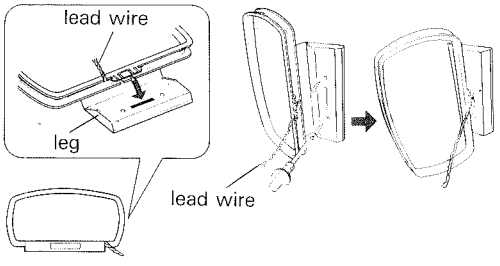
# ANTENNA CONNECTIONS

## AM ANTENNA

The AM loop antenna supplied with the tuner should be connected to the AM antenna terminals. The antenna should be placed at a distance from the turner, and should not be allowed to touch metallic objects. Avoid placing it near CD players, personal computers, television sets, and other devices generating radio frequencies.

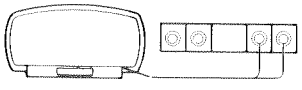
### Setting Up the AM Antenna

- Insert the claw on the bottom of the antenna into the groove in the leg.
- Place the antenna on a level surface and rotate it to locate the orientation that yields the best reception.
- Use the attachment hole in the leg to screw to wall or other location, then insert the claw on the bottom of the antenna into the groove in the leg (fixing the antenna in the direction that gives the best reception).




**AM Loop Antenna Connection**

The accessory AM loop antenna must be connected to ensure proper reception.



### External AM antenna

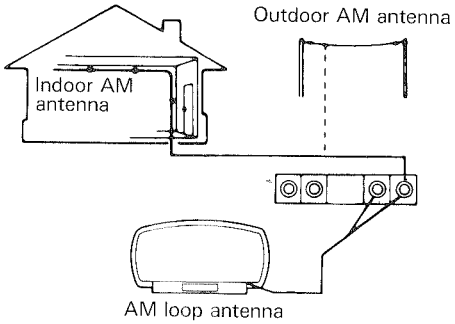
#### Indoor AM antenna

Provide a vinyl-coated wire (5 to 6 meters long). Secure one end to the AM terminal and the other end to a wall or other high location.

#### Outdoor AM antenna

If reception is still poor even when a lead antenna has been stretched out indoors, stretch out a vinyl-coated wire and secure it outdoors.

### Connecting the external AM antenna

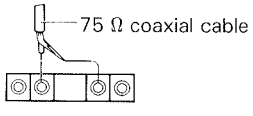



*CAUTION:*
*Do not detach the AM loop antenna when using the external AM antenna.*

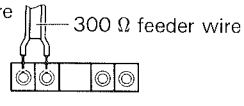
### External FM antenna installation

Use an external antenna when the signals from the station are weak and cannot be picked up by the accessory T-type FM antenna, or when the sound heard is accompanied by large amounts of noise. There are two ways of connecting by using either a 300 Ω feeder wire, or a 75 Ω coaxial cable.
It is recommended that you use the 75 Ω coaxial cable, so that the effects of extraneous noise are reduced to a minimum.

When the connecting cable is a 75 Ω coaxial cable

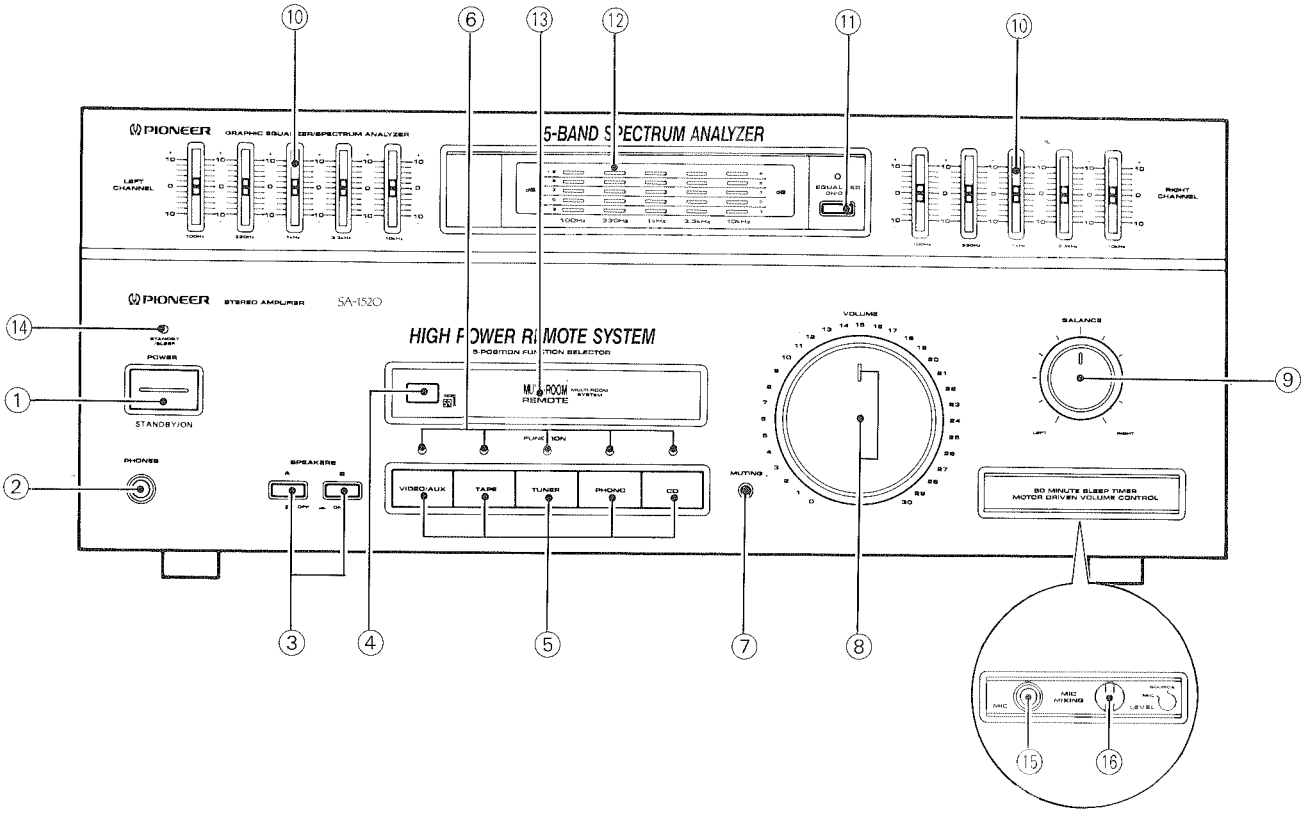



When the connecting cable is a 300 Ω feeder wire



# NAMES AND USES OF PARTS

## Amplifier




### ① POWER (STANDBY/ON) switch

- The accessory remote control unit can also be used to operate STANDBY/ON function of this switch.

**ON** ..... When set to the ON position, power is supplied and the unit becomes operational.

**STANDBY** .. When set to STANDBY position, the main power flow is cut and the unit is no longer fully operational. A minute flow of power feeds the unit to maintain operation readiness.

- When not using the unit for a long period, disconnect the wall socket.
- When the power is turned on, the protection circuitry operates and during that time the volume indicator flashes.

### ② PHONES jack

When using headphones, insert their plug into this jack.

### ③ SPEAKERS A, B (ON ■/OFF □) switches

**[ON]** — Depressed position: Sound is heard from the speaker system.
**[OFF]** — Released position: No sound is heard from the speaker system.

*NOTE:*
*When the speaker system is connected to only one speaker terminal (A or B) and both A and B selector switches are ON, there will be no sound.*
*Turn ON only the selector to which the speaker system is connected.*

### ④ REMOTE SENSOR window

### ⑤ FUNCTION switches

Use to select playback source.
**[CD]** — Press when listening to compact disc playback with a CD player.
**[PHONO]** — Press when listening to record playback on a turntable.
**[TUNER]** — Press when listening to AM or FM broadcasts with a tuner.
**[TAPE]** — Press when listening to tape playback with a cassette deck.
**[VIDEO/AUX]** — Press when listening to programs from a component connected to the VIDEO/AUX terminals.
Selection can also be performed with the accessory remote control unit.

### ⑥ FUNCTION indicators

These indicators light to show the setting of FUNCTION switches.

### ⑦ MUTING switch

Use to temporarily cut out all audio signals.
When this function is ON, sounds will be cut off (VOLUME indicator will flash).
When turned OFF, the sound returns to its previous level. The muting ON/OFF function can also be operated by the accessory remote control unit.

### ⑧ VOLUME control/indicator

Use to adjust sound volume.
When operated by remote control, this control will rotate with the knob indicator flashing.
Adjustment can also be performed with the accessory remote control unit.

### ⑨ BALANCE control

Should normally be left in the center position. Adjust balance if the sound is louder from one of the speakers.If the right side is louder, turn toward the LEFT position, and if the left side is louder, turn toward the RIGHT position.

### ⑩ GRAPHIC EQUALIZER controls

These controls can be used to emphasize or de-emphasize sounds in the frequency bands 100 Hz, 330 Hz, 1 kHz, 3.3 kHz, and 10 kHz, thus allowing you to control tone quality. The center position of each control is the normal (flat) setting. When raised above the center position, the control frequency band is emphasized; when lowered, the band is de-emphasized.

### ⑪ EQUALIZER ON/OFF switch/indicators

When this switch is pressed, the GRAPHIC EQUALIZER control's indicators turn on, and its functions become operative.
When pressed once again. the indicators are turned off. Use this switch in the following manner:

**[ON]** : When using the equalizer to add sound compensation while performing program sources, and playing back and/or recording results.

**[OFF]** : When not using the equalizer, but playing back or recording program sources without compensation.

*NOTE:*
*Equalizer ON/OFF indication is provided by a light on the equalizer switch itself on U.S. and Canadian models, or by control knob indicators on other models.*

### ⑫ SPECTRUM ANALYZER

This display shows the condition of sound signals compensated with the graphic equalizer controls.
(Because the level indicator is connected to the input side, the indication does not change when the VOLUME control is turned.)

### ⑬ MULTI-ROOM indicator

This indicator is always lit, but if you connect an MR-100 optional Multi-Room remote control unit, it will flash when the MR-100 is receiving a remote control signal.

### ⑭ STANDBY/SLEEP indicator

- This indicator flashes when the accessory remote control unit is used to turn SLEEP key. When SLEEP key is ON, the indicator will flash. (Initially it will flash slowly, then gradually become faster.)
  Sixty minutes after the sleep timer is turned ON, the power switch will be turned to STANDBY automatically.
- This indicator lights when the accessory remote control unit or this unit is used to turn POWER key.

### ⑮ MIC jack

Connects to a six millimeter microphone plug.

### ⑯ MIC LEVEL control

Use to adjust microphone input level.

*NOTE:*
*⑮ and ⑯ do not exist on U.S. and Canadian models.*

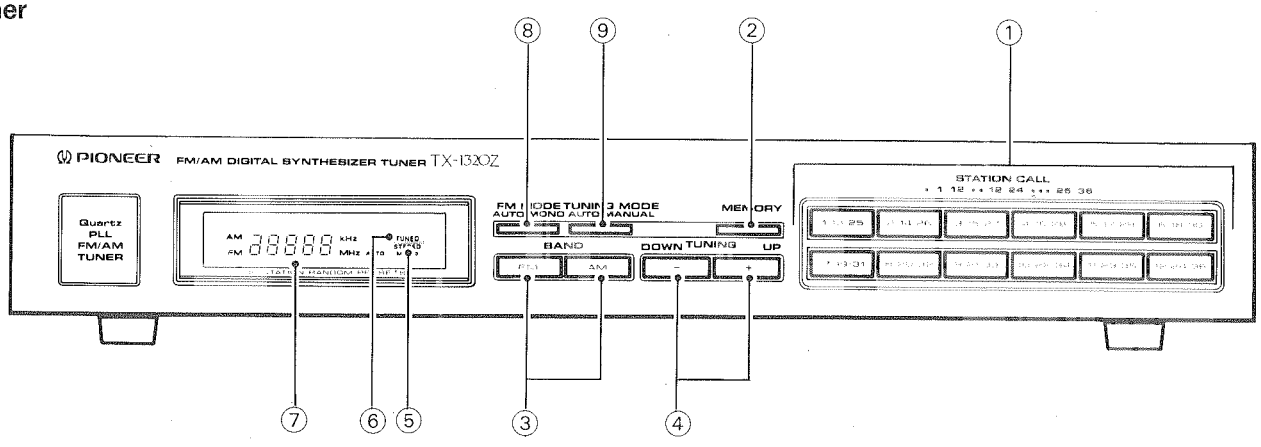
This component features a built-in microcomputer which will recall the last-set positions of the following switches for up to about several days after the power cord is disconnected. As a result, when the power is turned ON again, the previously set positions will be recalled automatically:

- MUTING switch
- FUNCTION switch
- EQUALIZER ON/OFF switch

When the unit is not used for more than several days, the memorized setting positions will be erased, and returned to the following settings:

- MUTING switch ..... OFF
- FUNCTION switches ..... TUNER
- EQUALIZER ON/OFF switch..... OFF

## Tuner




### ① STATION CALL switches

These are used to recall preset broadcasting stations and to preset the stations.

### ② MEMORY switch

This switch is used to memorize stations. When the switch is pressed, the frequency indicator will flash. To memorize the frequency of any station, press STATION CALL switch while the frequency display is flashing.

### ③ BAND selector switch

This is used to select the band of the desired station.
FM: Press to receive FM broadcast.
AM: Press to receive AM broadcast.

### ④ TUNING switches

These are used to locate the stations.
Push "–" switch to go to a lower, and "+" switch to go to a higher frequency.

### ⑤ STEREO indicator

This lights when a stereo program has been picked up during an FM broadcast.

### ⑥ TUNED indicator

This lights to indicate when the finest tuning of a station has been achieved.

### ⑦ FREQUENCY display

Permits reading the received frequency at a glance from the displayed figure.
The FM band is indicated by MHz, and the AM band by kHz.

### ⑧ FM MODE (AUTO/MONO) switch

Normally this is set to the off position (the fm MONO indicator goes off). When noise spoils the reception of an FM Program, press the switch to the on position (the fm MONO indicator will now light). The program of an FM stereo broadcast will be heard in mono. The setting of FM MODE switch (on or off) is memorized along with the station's frequency in STATION CALL switches.
When using the preset tuning feature, reception will be in the mode selected when the station was memorized. This switch will not function for AM reception.

### ⑨ TUNING MODE (AUTO/MANUAL) switch

Use to select either the AUTO mode or MANUAL mode for FM/AM reception.
(When the auto tuning mode is selected, the AUTO indicator will now light.)

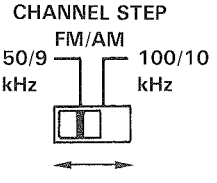
### AM/FM CHANNEL STEP SWITCH

The AM/FM channel step switch is located on the rear panel of the digital synthesizer tuner. Before the Tuner leaves the factory, this switch is set to the channel allocation system of the area in which the tuner is sold. When TUNING switch is pressed, the frequency display will change in the following way.

| Model destination | CHANNEL STEP switch position | Frequency change | |
|---|---|---|---|
| | | FM mode | AM mode |
| North America and Continental South America | 100 kHz/ 10 kHz | 100kHz | 10kHz |
| Other countries | 50 kHz/ 9 kHz | 50kHz | 9kHz |

*NOTE:*
*If the switch is set to the wrong position, correct tuning will not be possible.*

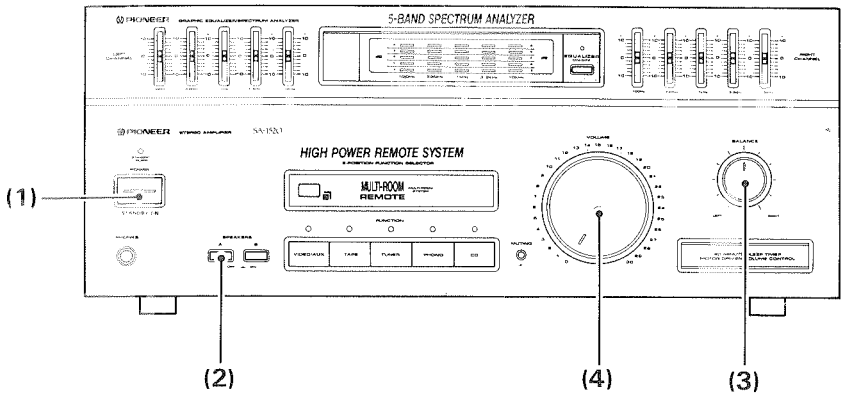
*Consult your dealer if you are not sure about the channel allocation system in your area.*



# OPERATIONS

## BEFORE BEGINNING OPERATIONS

Set the controls and switches as follows:




**(1) Set POWER switch to ON.**

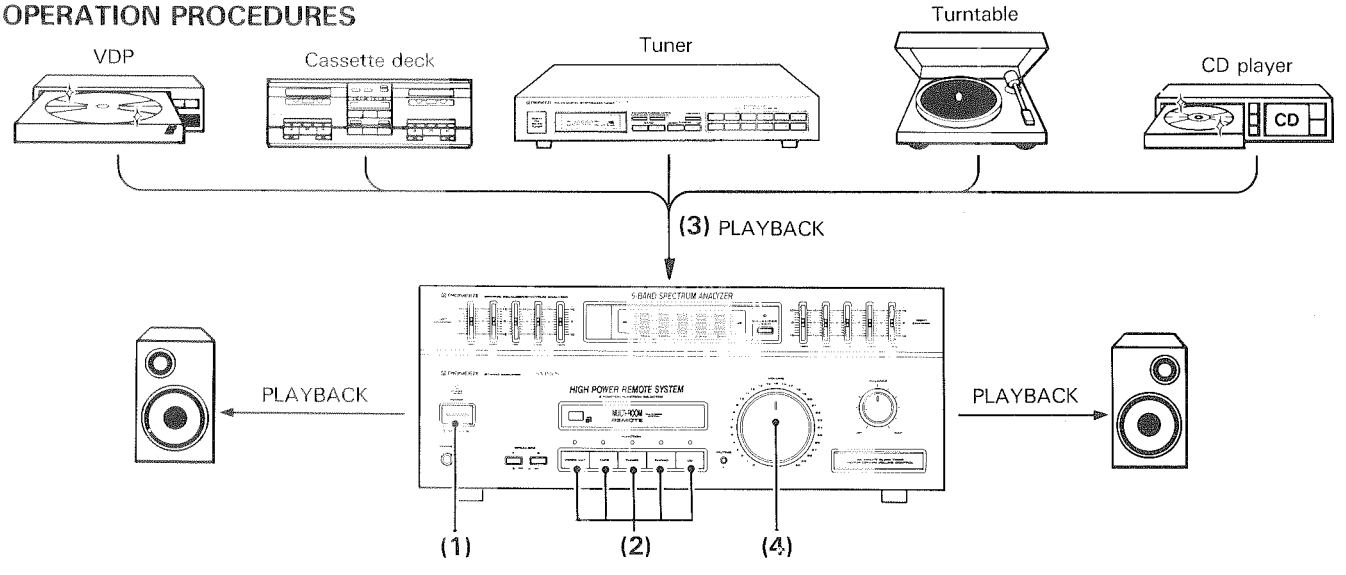
**(2) Set SPEAKERS A switch to ON.**

When the speaker system is connected to the speakers A terminals.

**(3) Set BALANCE control to center position.**

**(4) Set VOLUME control to 0 position.**

## OPERATION PROCEDURES




**(1) Turn on power to this unit and to the other equipment to be used.**

**(2) Press FUNCTION switch**

Use to select playback source.

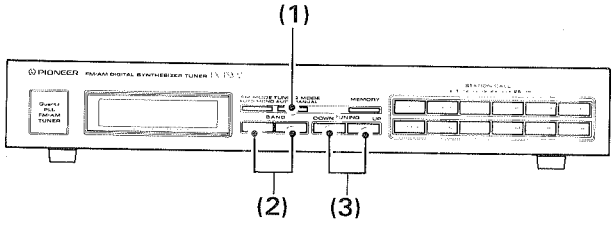
- When listening to a compact disc: Press [CD].
- When listening to a record: Press [PHONO].
- When listening to an AM or FM broadcast: Press [TUNER].
- When listening to a tape: Press [TAPE].
- When listening to programs from equipment connected to the VIDEO/AUX terminals: Press [VIDEO/AUX].

**(3) Operate equipment to begin playback.**

**(4) Adjust playback volume with the VOLUME control and the tone with the GRAPHIC EQUALIZER on this unit.**

## Listening to FM or AM broadcasts.

**<Auto tuning can be used for both FM and AM reception.>**




**(1) Use TUNING MODE switch to select the AUTO tuning mode or the MANUAL tuning mode.**

- When the auto tuning mode is selected, the AUTO indicator will light.

**(2) Use BAND selector switch to select either the FM or AM reception band.**

- For FM broadcasts, the "FM" and "MHz" indicators will light.
- For AM broadcasts, the "AM" and "kHz" indicators will right.

**(3) Press – (DOWN) or + (UP) of the TUNING switches.**

### Auto tuning:

The tuner will automatically search for a broadcasting station, and stop when one is found. To search for another station, press again.

### Manual tuning:

The tuning frequency will change by one step each time the switch is pressed. Press as many times as necessary to tune in the desired station.

- If the switch is held depressed, the reception frequency will change continuously, and stop when the switch is released.

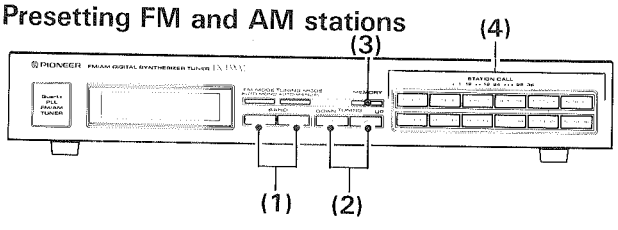
**(4) When you wish to receive a different station within the same band, repeat step 3. To receive a station on a different reception band, repeat steps 2 and 3.**

**(5) Adjust the volume and tone of the stereo amplifier.**

*NOTE:*

- *When AUTO TUNING is in use, reception may not be possible over long distances or when signals are weak. At these times MANUAL TUNING is recommended.*

## Presetting FM and AM stations



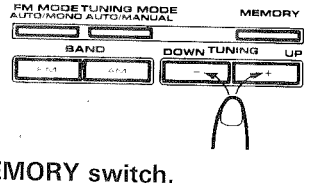

You can preset 12 FM and AM stations in Mode 1, 12 stations in Mode 2, and 12 stations in Mode 3, that is a total of 36 stations.

**(1) Use BAND selector switch to select either the FM or AM reception band.**

- For FM broadcasts, the "FM" and "MHz" indicators will light.
- For AM broadcasts, the "AM" and "kHz" indicators will light.

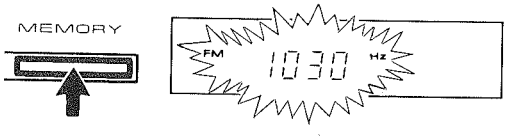
**(2) Use TUNING switches to tune in the desired station.**

When memorizing an FM station, either press FM MODE switch into forcibly memorize the station in the monaural mode, or memorize the station in the auto stereo mode (with FM MODE switch left in the OFF position).




**(3) Press MEMORY switch.**

- The display will flash (about 5 seconds).

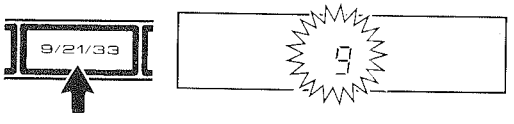



**(4) Press STATION CALL switch.**

While the display is flashing, press the switch corresponding to the station which you wish to preset or re-preset.

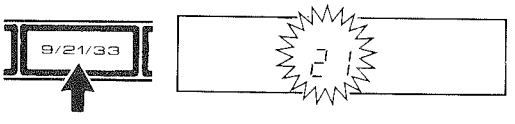
When presetting a station to Mode 1 (e.g. presetting a station to No. 9):

By pressing the station call switch once, the station will be preset to Mode 1 (1-12).



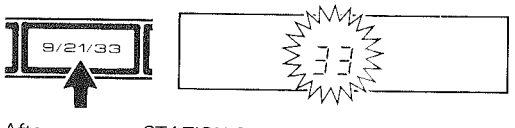

When presetting a station to Mode 2 (e.g. presetting a station to No. 21):

By pressing the station call switch twice, the station will be preset to Mode 2 (13-24).



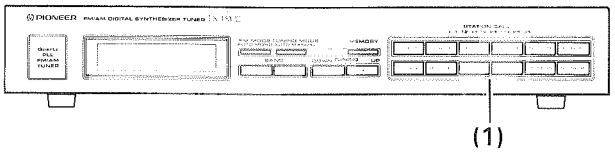

When presetting a station to Mode 3. (e.g. presetting a station to No.33):

By pressing the station call switch three times, the station will be preset to Mode 3 (25-36).




- After you press STATION CALL switch, the display will flash for about 2 seconds, then the station will be memorized. If you press another switch while the display is flashing, the station will not be memorized.

## Preset station tuning




### (1) Press STATION CALL switch into which the desired station has been memorized.

- To listen to a Mode 1 broadcast, press the switch once, to listen to a Mode 2 broadcast, press it twice, and to listen to Mode 3 broadcast, press it three times.
- By pressing STATION CALL switch, the switch number will be displayed, then the frequency will be displayed.

*NOTE:*
*If, for example, you wish to receive the station memorized in STATION CALL switch "13" when listening to the station memorized in switch "9," press switch "1/13/25" twice.*

In this way, simple and accurate reception of any desired station is possible.

*NOTE:*
- *The contents of STATION CALL switches will be preserved for several days, even if the power cord is unplugged.*
- *If a preset station has been erased, reset it.*

## Last station memory

- When POWER switch is pressed to turn power on, the last station received before the power was previously turned off will be received again.
- When power is ON, if BAND selector switch is pressed, the last station received before BAND selector switch was previously pressed will be received again.

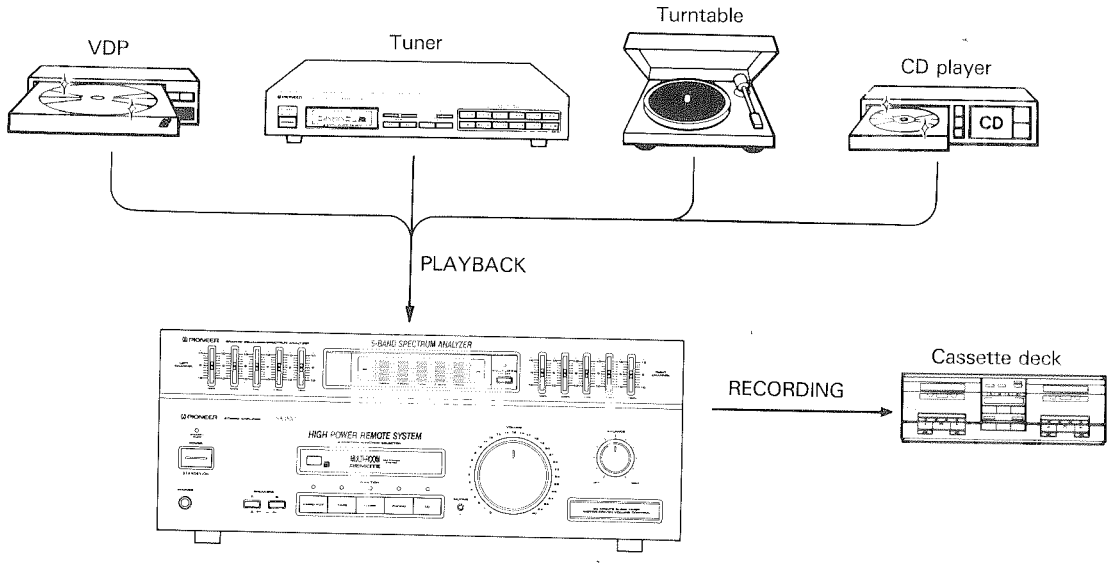
## STATION CALL switch "memo"

It is recommended that you make a note of the preset stations.

| S.C.switch | • | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Name of broadcast station | | | | | | | | | | | | | |
| Frequency | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| S.C.switch | •• | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| Name of broadcast station | | | | | | | | | | | | | |
| Frequency | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| S.C.switch | ••• | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |
| Name of broadcast station | | | | | | | | | | | | | |
| Frequency | | | | | | | | | | | | | |

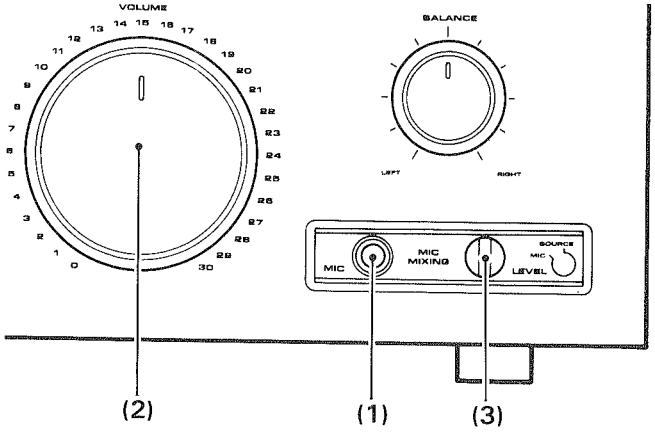
## RECORDING TAPES:

- While listening to playback on equipment connected to the rear panel terminals you can record these same sounds on tape merely by setting your cassette deck to the recording mode.
- Sound compensated with the built-in graphic equalizer can be recorded. Set the EQUALIZER ON/OFF switch to the ON position.
- Refer to the operating instructions for your cassette deck for proper operating procedures.




## MIC MIXING:

This function doesn't exist on U.S. and Canadian models.
Use a microphone with a six millimeter plug.



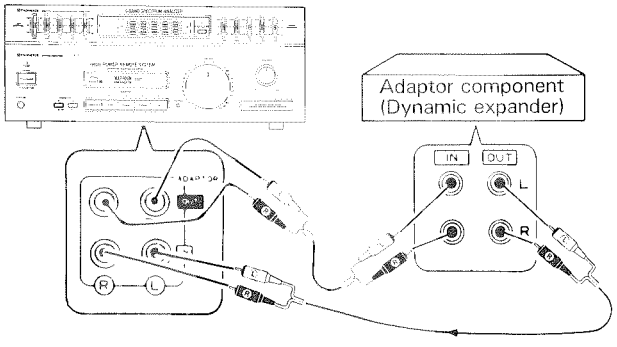

**(1) Use the function switches to select the component you want to perform with.**
**(2) Connect the microphone to the microphone jack.**
**(3) Raise volume to a suitable level.**
**(4) Adjust microphone level while speaking into the microphone.**
**(5) Face the microphone and speak or sing into it.**

*NOTE:*

- *MIC MIXING sound cannot be recorded.*
- *When you aren't using MIC MIXING, be sure to turn the LEVEL knob to the SOURCE side.*
- *When not using a microphone, disconnect it from the MIC jack.*

## TO USE THE COMPONENT CONNECTED TO THE ADAPTOR TERMINALS:

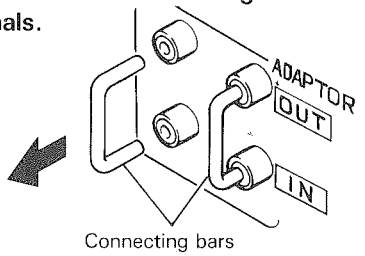
Connecting the dynamic expander to the adaptor makes it possible to enjoy the dynamic expander's effects.




**[Connection]**

**(1) Set the POWER switch to OFF.**

**(2) Remove the two connecting bars from the adaptor terminals.**




Connecting bars

*NOTE:*
*Always remember to keep the connecting bars in place when these terminals are not being used.*

**(3) Connect the adaptor component in accordance with the connection diagram in the section "Connections."**

**[Operation]**

**(1) Playback the source.**

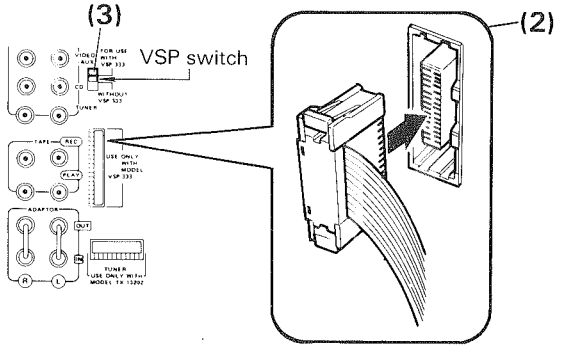
**(2) Operate the adaptor component.**

The sound compensated with the connected adaptor component can be recorded on a cassette deck. Signals modified with an adaptor component can be recorded on a cassette deck.

*NOTE:*
*Be sure to perform this operation with the adaptor components power switch in the ON position. Even when not using the adaptor component, its power switch must be left ON. If the adaptor component is switched OFF no sound will be produced or the playback sound will be distorted. For details, refer to the adaptor component's operating instructions.*

## Using the Optional VSP-333 Digital Surround Processor

If you connect a VSP-333, the main unit can be used as the front amplifier of a surround system.




**[Connecting]**

**(1) Set the power switch to OFF.**

**(2) Connect the VSP-333 input/output cord to amplifier.**

Insert the connector until it locks, thus ensuring that it is connected. When disconnecting the connector, pull it in the opposite direction while pressing the left and right claws.

**(3) The VSP switch should be in the FOR USE WITH VSP-333 position.**

*NOTE:*
- *Be sure the VSP switch is in the WITHOUT VSP-333 position when a VSP-333 is not connected. In the ON position there will be no sound.*
- *Even if the VSP-333 is connected, if the VSP switch is in the WITHOUT VSP-333 position, VSP-333 volume level adjustment will not be possible.*

**[OPERATIONS]**

**(1) Playback the source.**

**(2) Operate the VSP-333.**

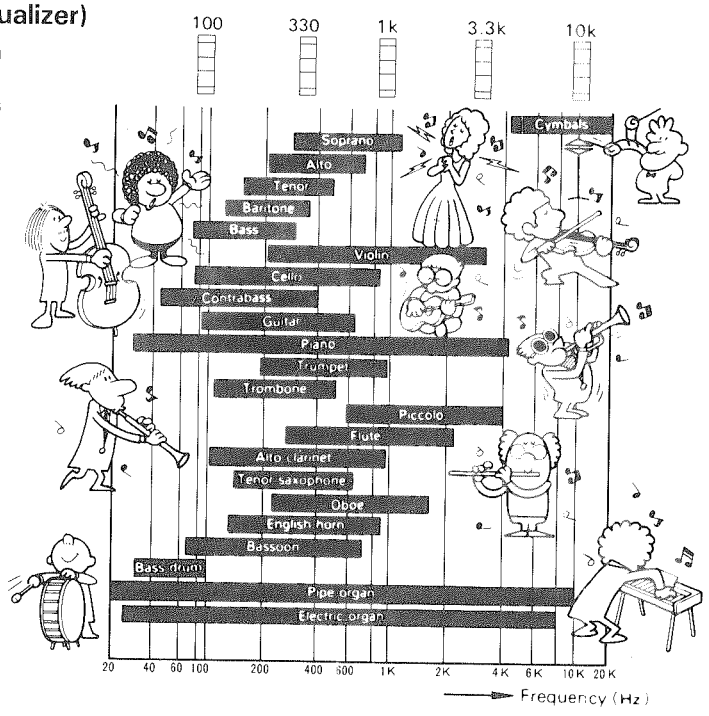
*NOTE:*
*Be sure to perform this operation with the VSP-333's power switch in the ON position. Even when not using the VSP-333, its power switch must be left ON. If the VSP-333 is switched OFF, no sound will be produced, or the playback sound will be distorted.*
*For details, refer to the VSP-333's operating instructions.*

### Recording with the VSP-333 (optional) connected

Sound recording from sources such as VCR 1, VCR 2, and VDP connected to the VSP-333 input jacks is possible with the cassette deck, but be sure the SA-1520's FUNCTION switches are in a position other than TAPE. If you select TAPE with the FUNCTION switches, recording is not possible from sources connected to the VSP-333.

## SOUND COMPENSATION (Using the Graphic Equalizer)

All instruments and vocals have their own frequency band, as shown in the figure.
By moving the controls up or down, the volume of the instruments preferred can be boosted or other instruments can be attenuated.
For instance, it is possible to boost the 100 Hz frequency and give the bass drum greater "punch" or boost the 1 kHz frequency and position the vocals at the front. When the 10 kHz frequency is boosted, the cymbals and "high hat" sound is much clearer.
Instruments and vocals have a great many harmonic components along with the fundamental frequency band and so you can have lots of fun operating the 5 controls to achieve the sound of your choice.



# TROUBLESHOOTING

Incorrect operations are often mistaken for trouble and malfunctions. If you think that there is something wrong with this component, check the points below. Sometimes the trouble may lie in another component. Investigate the other components and electrical appliances being used.
If the trouble cannot be rectified even after exercising the checks listed below, ask your nearest PIONEER authorized service center or your dealer to carry out repair work.

## Amplifier Section

| Symptom | Cause | Remedy |
|---|---|---|
| **No power supplied to unit.** | • Power plug is disconnected from outlet.<br>• The component power plug has been plugged into another component power outlet (e.g. timer, etc.), but power to that unit is disconnected. | • Insert plug securely in outlet.<br>• Turn on power to other component. |
| **No sound.** | • Connecting cords are disconnected from terminals, or connected incorrectly.<br>• Terminals or connecting cord pin plugs are dirty.<br>• The connecting bar(s) is(are) disconnected from the adaptor terminals.<br>• The MUTING switch is set to ON.<br>• The function switch selected does not match the component being played back.<br>• Operation of other components is mistaken.<br>• Both the SPEAKER A ON/OFF switch and the SPEAKER B ON/OFF switch are at the ON position, but speakers are connected to only the SPEAKERS A or B terminals (not to both). | • Connect securely.<br>• Clean terminals and plugs.<br>• Replace the connecting bar(s) properly.<br>• Turn switch OFF.<br>• Set switches correctly (PHONO, TUNER, CD, VIDEO/AUX, TAPE).<br>• Consult the operating instructions for the other components.<br>• Set the SPEAKER ON/OFF switch to the OFF position for the speaker terminal to which speakers are not connected. |
| **No sound from one speaker.** | • Connecting cords or speaker wires are disconnected to the side.<br>• BALANCE control has been adjusted to one side. | • Connect securely.<br>• Adjust BALANCE control to center position. |
| **Can't record tapes.** | • Connections are mistaken.<br>• Operation of cassette deck is mistaken. | • Reconnect properly.<br>• Consult the operating instructions for the cassette deck. |

*If only the power of the VSP-333 is turned off while the VSP-333 is connected, then the sound may become distorted, but this does not indicate a malfunction.*

## Tuner Section

| Symptom | Cause | Remedy |
|---|---|---|
| **No sound.** | • Has the antenna been disconnected or is the connection loose?<br>• Has the power cord been unplugged for several days? (Station memory has been lost.) | • Connect the antenna properly.<br>• Memorize the preset stations once again. |
| **Sound distortion.**<br>**[On the FM band]** | • Are the signals weak and reception poor?<br>• Static from other appliances (particularly automobiles) or multipath reflection (radio waves beamed off mountains and tall buildings and not received directly.)<br>• Are radio waves weak, causing antenna input to be insufficient? | • Substitute an FM outdoor antenna for the FM T-type antenna.<br>• Set the FM MODE switch to MONO (reception will be in monaural).<br>• Try varying the height and direction of the antenna or use an FM outdoor antenna substituting a 75 Ω coaxial cable for the standard cable and fixing it as far away as possible from the street.<br>• Use an external antenna. |
| **Sound distortion.**<br>**[On the AM band]** | • Is the AM loop antenna oriented poorly or located in an unsatisfactory position?<br>• Static from other electrical appliances (fluorescent lights/motors?) | • Change the direction of the antenna until best reception is obtained as far as possible from tuner.<br>• Switch off other appliances or keep as far away as possible from the tuner when in use. |
| **Stereo broadcasts not received in stereo.** | • Are the signals weak, with insufficient input?<br>• Is the FM MODE switch MONO? | • Change to an outdoor FM antenna.<br>• Press the FM MODE switch to AUTO. |

# SPECIFICATIONS

## [SA-1520]

### Amplifier Section

### U.S., Canadian models

**Continuous average power output is 130 watts* per channel, min., at 8 ohms from 20 Hertz to 20,000 Hertz with no more than 0.05 % total harmonic distortion.****

### Other destination models

Music power
1 kHz, T.H.D. 10 %, 8 Ω ..... 350 W + 350 W
Peak music power
L + R channels ..... 1,400W

### Same for all models

Total harmonic distortion**
20 Hz to 20 kHz, 130 W, 8 Ω ..... 0.05 %
Input (Sensitivity/Impedance)
PHONO ..... 2.5 mV/50 kΩ
CD, VIDEO/AUX, TUNER, TAPE PLAY, ADAPTOR IN
..... 150 mV/50 kΩ
Phono Overload Level (T.H.D. 0.1%, 1 kHz) ..... 100 mV
Output (Level/Impedance)
TAPE REC, ADAPTOR OUT ..... 150 mV/2.2 kΩ
Frequency Response
PHONO 20 Hz to 20 kHz (RIAA equalization)
U.S., Canadian, U.S. Military models ..... ±1 dB
Other destination models ..... ±2 dB
CD, VIDEO/AUX, TUNER, TAPE PLAY, ADAPTOR IN
10 Hz to 50 kHz, U.S., Canadian, U.S. Military models ..... ±3 dB
20 Hz to 50 kHz, Other destination models ..... ±3 dB
Muting ..... −∞
Graphic equalizer
100 Hz ..... ±8 dB
330 Hz ..... ±8 dB
1 kHz ..... ±8 dB
3.3 kHz ..... ±8 dB
10 kHz ..... ±8 dB
Signal-to-Noise Ratio (IHF, Short circuited, A network)
U.S., Canadian, U.S. Military models
PHONO ..... 72 dB
CD, VIDEO/AUX, TUNER, TAPE PLAY, ADAPTOR IN ..... 96 dB
Other destination models
PHONO ..... 66 dB
CD, VIDEO/AUX, TUNER, TAPE PLAY, ADAPTOR IN ..... 92 dB

### Miscellaneous

Power Requirements
U.S., Canadian models ..... AC 120 V, 60 Hz
Other destination models
..... AC 110 V/120 V – 127 V/220 V/240 V (Switchable), 50/60 Hz
Power Consumption
U.S., Canadian models ..... 480 W (UL), 620 VA (CSA)
Other destination models ..... 690 W
Dimensions ..... 420 (W) x 170 (H) x 336 (D) mm
16-1/2 (W) x 6-11/16 (H) x 13-1/4 (D) in
Weight (without package) ..... 9.1 kg (19 lb 10 oz)

### Furnished parts

Remote Control Unit ..... 1
Dry-cell batteries ..... 2
Operating Instructions
(Stereo amplifier and tuner) ..... 1
(Remote control unit) ..... 1

*NOTE:*

* Measured pursuant to the Federal Trade Commission's Trade Regulation rule on Power Claims for Amplifier.
** Measured by audio spectrum analyzer.

## [TX-1320Z]

### FM Tuner Section

Frequency range ..... 87.5 MHz to 108 MHz
Usable Sensitivity (IHF) ..... 12.7 dBf (1.2 μV/75 Ω)
50 dB Quieting Sensitivity ..... MONO: 18.0 dBf (2.2 μV/75 Ω)
STEREO: 38.3 dBf (22.6 μV/75 Ω)
Signal-to-Noise Ratio ..... MONO: 77 dB (at 85 dBf)
STEREO: 73 dB (at 85 dBf)
Distortions ..... 0.3 % (1 kHz)
Alternate Channel Selectivity ..... 65 dB (400 kHz)
Stereo Separation ..... 40 dB (1 kHz)
Antenna Input ..... 300 Ω balanced
75 Ω unbalanced
Output ..... 650 mV/1.5 kΩ (100 % MOD.)

### AM Tuner Section

Frequency range
(10 kHz/9 kHz step) ..... 530/531 kHz to 1,700/1,602 kHz
Sensitivity (IHF, Loop antenna) ..... 350 μV/m
Selectivity ..... 20 dB
Signal-to-Noise Ratio ..... 45 dB
Antenna ..... Loop antenna
Output ..... 150 mV/1.5 kΩ (30 % MOD.)

### Miscellaneous

Dimensions ..... 420 (W) x 70 (H) x 273 (D) mm
16-1/2 (W) x 2-3/4 (H) x 10-5/8 (D) in
Weight (without package) ..... 2.4 kg (5 lb 5 oz)

### Furnished Parts

FM T-type Antenna ..... 1
AM Loop Antenna ..... 1

*NOTE:*

- *Specifications and design subject to possible modification without notice due to improvements.*

### CLEANING THE UNIT

Wipe the front panel when dusty or greasy with a soft cloth containing a small amount of diluted neutral cleaning fluid. Then wipe dry with a cloth.
Never use volatile spirits like thinners, benzine or alcohol, as they will damage the panel's finish.

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